

Specifications — MLS 304 Series and MLS 406 Series

Video

Gain	Unity
Bandwidth	280 MHz (-3 dB)
Differential phase error	1.0° at 3.58 MHz and 4.43 MHz
Differential gain error	1.0% at 3.58 MHz and 4.43 MHz
Crosstalk	-68 dB @ 10 MHz, -39 dB @ 100MHz
Switching speed	5 ms (max.)

Video input and loop-through

Number/signal type	
MLS 304 Series	2 RGBHV, RGBS, RGsB, RsGsBs 1 RGBHV, RGBS, RGsB, RsGsBs local monitor loop-through 2 composite video
MLS 406 Series	3 RGBHV, RGBS, RGsB, RsGsBs 1 RGBHV, RGBS, RGsB, RsGsBs local monitor loop-through 3 S-video 3 composite video
Connectors	
MLS 304 Series	2 female 15-pin HD (RGB), 1 female 15-pin HD (RGB loop-through) 2 female RCA (composite video)
MLS 406 Series	3 female 15-pin HD (RGB), 1 female 15-pin HD (RGB loop-through) 3 female 4-pin mini DIN (S-video) 3 female BNC (composite video)
Nominal level	1 Vp-p for Y of S-video, and for composite video 0.7 Vp-p for RGB 0.3 Vp-p for C of S-video (MLS 406 Series)
Minimum/maximum levels	
RGB	Analog: 0.3 V to 1.5 Vp-p with no offset
S-video, composite video	Analog: 0.4 V to 2.0 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz
Return loss	
RGB	<-40 dB @ 5 MHz
S-video	<-25 dB, 0 to 10 MHz
Composite video	<-40 dB, 0 to 10 MHz
DC offset (max. allowable)	1.5 V

Video output

Number/signal type	
MLS 304 Series	1 RGBHV, RGBS, RGsB, RsGsBs (follows input) 1 composite video
MLS 406 Series	1 RGBHV, RGBS, RGsB, RsGsBs (follows input) 1 S-video 1 composite video
Connectors	
MLS 304 Series	5 female BNC (RGB) 1 female BNC (composite)
MLS 406 Series	5 female BNC (RGB) 2 female BNCs (S-video) 1 female BNC (composite)
Nominal level	1 Vp-p for Y of S-video, and for composite video 0.7 Vp-p for RGB 0.3 Vp-p for C of S-video (MLS 406 Series)

Minimum/maximum levels

RGB	Analog: 0.3 V to 1.5 Vp-p (follows input)
Composite video	Analog: 0.4 V to 2.0 Vp-p (follows input)
Impedance	75 ohms
Return loss	<-40 dB @ 5 MHz
DC offset	±5 mV with input at 0 offset
Switching type	Triple-Action (RGB delay)

Sync

Input type	RGBHV, RGBS, RGsB, RsGsBs
Output type	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	2.0 V to 5.0 Vp-p
Output level	TTL: 5.0 Vp-p, unterminated
Input impedance	10k ohms
Output impedance	75 ohms
Max input voltage	5.0 Vp-p
Max. propagation delay	30 ns
Max. rise/fall time	4.0 ns
Polarity	Positive or negative (follows input)

Audio

Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response at 1 watt output	
Preamp/Lineout	20 Hz to 20 kHz, ±0.5 dB
Direct (4/8 ohm)	20 Hz to 20 kHz, ±1.0 dB
Transformer (70 V or 100 V mono amplifier)	50 Hz to 20 kHz, +0 dB/-3 dB
THD + Noise	
Power amp (mono or stereo)	0.037% @ 1 kHz at nominal level (1 watt, 8 ohm load)
Preamp	0.11% @ 1 kHz at nominal level
Lineout	0.018% @ 1 kHz at nominal level
S/N at maximum power output (unweighted)	
Power amp	>75 dB @ 10 Hz to 22 kHz
Preamp	>80 dB @ 10 Hz to 22 kHz
Lineout	>80 dB @ 10 Hz to 22 kHz
Crosstalk	
Power amp	<-75 dB @ 1 kHz, fully loaded
Preamp	<-75 dB @ 1 kHz, fully loaded
Lineout	<-80 dB @ 1 kHz, fully loaded
Stereo channel separation	>80 dB @ 1 kHz
CMRR	>85 dB @ 20 Hz to 200 Hz, >75 dB @ 20 Hz to 20 kHz
Bass	±10 dB @ 100 Hz
Treble	±10 dB @ 10 kHz
Loudness (contour)	+6 dB @ 100 Hz to 10 kHz

Audio input

Number/signal type	
MLS 304 Series	4 stereo, unbalanced 1 Aux/Mix balanced/unbalanced mono (nonswitchable)
MLS 406 Series	5 stereo, unbalanced (inputs 1-3, 5, 6) 1 stereo, balanced/unbalanced (input 4) 1 Aux/Mix balanced/unbalanced mono (nonswitchable)

Specifications — MLS 304 Series, MLS 406 Series (cont'd)

Connectors

MLS 304 Series	2 pairs of female RCA connectors (inputs 1-2) 2 female 3.5 mm mini stereo jacks (unbalanced only) (inputs 3-4); tip (L), ring (R), sleeve (GND) (1) 3.5 mm captive screw connector, 3 pole (Aux/Mix input)
MLS 406 Series	3 pairs of female RCA connectors (inputs 1-3) 1 female 3.5 mm captive screw connector, 5 pole (input 4) 2 female 3.5 mm mini stereo jacks (unbalanced only) (inputs 5, 6); tip (L), ring (R), sleeve (GND) (1) 3.5 mm captive screw connector, 3-pole (Aux/Mix input)

Impedance

Aux/Mix input	>18k ohms unbalanced, DC coupled
All other inputs	>10k ohms unbalanced, DC coupled

Nominal level -10 dBV (316 mVrms)

Maximum level +8 dBV (10.2 dBu, 2.51 Vrms), unbalanced at <0.1% THD+N
+10 dBu (7.28 dBV, 2.45 Vrms), balanced at <0.1% THD+N

Input gain adjustment -42 dB to +24 dB, adjustable per input

NOTE 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Audio output — Lineout and Preamp

Number/signal type 2 (1 Lineout/fix and 1 Preamp/variable) stereo/mono, balanced/unbalanced

Connectors (2) 3.5 mm captive screw connectors, 5 pole

Impedance 50 ohms unbalanced, 100 ohms balanced

Gain error ± 0.8 dB channel to channel

Nominal level Configurable: -10 dBV (316 mVrms, default), +4 dBu (1.23 Vrms)

Maximum level (600 ohm)

Preamp >+19 dBu, balanced <0.1% THD+N

Lineout >+16 dBu, balanced <0.1% THD+N

NOTE Unbalanced wired outputs produce 6 dB of attenuation. Balanced outputs have unity gain/attenuation.

Audio output — mono power amp (MLS 304MA, MLS 406MA only)

Number/signal type (1) mono

Connector (1) 5-position screw terminal

Sensitivity -20 dBV (-17.8 dBu; 100 mVrms) (adjustable) for maximum power output

Power bandwidth

Direct (4 ohm) 20 Hz to 20 kHz, $\leq 0.5\%$ THD

Direct (8 ohm) 20 Hz to 20 kHz, $\leq 0.15\%$ THD

Transformer (70 V) 50 Hz to 20 kHz, $\leq 1\%$ THD

Transformer (100 V) 50 Hz to 20 kHz, $\leq 0.5\%$ THD

Maximum power output

Direct (4/8 ohm) 20 watts max. (continuous)

Transformer (70/100 V) .. 16 watts max. (continuous), transformer coupled

Protection Input limiting, thermal, short circuit

Audio output — stereo power amp (MLS 304SA, MLS 406SA only)

Number/signal type (1) stereo (default) or dual mono (configured via software)

Connector (1) 5-position screw terminal

Sensitivity -20 dBV (-17.8 dBu; 100 mVrms) (adjustable) for maximum power output

Power bandwidth

Direct (4 ohm) 10 Hz to 20 kHz, $\leq 0.5\%$ THD

Direct (8 ohm) 20 Hz to 20 kHz, $\leq 0.8\%$ THD

Maximum power output	
Direct (4 ohm)	24 watts max. (continuous), 12 watts (rms) per channel
Direct (8 ohm)	16 watts max. (continuous), 8 watts (rms) per channel
Protection	Input limiting, thermal, short circuit

Control/remote — switcher

Serial control port	RS-232, 3.5 mm captive screw connector, 5 pole (uses 3 poles)
Baud rate and protocol	9600, 8-bit, 1 stop bit, no parity
Serial control pin configurations	1 = TX, 2 = RX, 4 = GND
Program control	Extron's configuration program for Windows® Extron's Simple Instruction Set (SIS™)

General

Power	100 VAC to 240 VAC, 50/60 Hz, 60 watts, internal, autoswitchable
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +113 °F (0 to +45 °C) / 10% to 90%, noncondensing
Rack mount	Yes, with included brackets (#70-077-03)
Enclosure type	Metal
Enclosure dimensions	1.75" H x 17.5" W x 8.5" D (1U high, full rack wide) 4.4 cm H x 44.4 cm W x 21.6 cm D (Depth excludes connectors and knob. Width excludes rack ears.)
Product weight	
MLS 406	5.0 lbs (2.3 kg)
Amplified models	6.0 lbs (2.7 kg)
Shipping weight	
MLS 406	10 lbs (5 kg)
Amplified models	11 lbs (5 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

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